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DIRECTORATE OF
INTELLIGENCE

# Intelligence Report

## *A Comparison of the US and Soviet Economies*

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ER IR 69-4
March 1969

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CENTRAL INTELLIGENCE AGENCY
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March 1969

INTELLIGENCE REPORT

# A Comparison of the US and Soviet Economies

## Summary

The Soviet Union, the world's second largest industrial power, has an economy about half the size of that of the United States. Its total production of goods and services, or gross national product (GNP), amounted to about $412 billion in 1968. (For a comparison of Soviet and US GNP, by end use, for 1967, see Figure 1.) Its longstanding economic priorities have emphasized rapid industrialization and a strong defense establishment. These priorities are reflected in the fact that the level of investment in the USSR is nearly seven-eighths of the US level, and Soviet expenditures for defense and space are about three-quarters of those of the United States. In sharp contrast, the level of living of the Soviet population (consumption per capita) is a little under one-third of the US level.

Except for fluctuations caused by the effect of weather on agricultural production, Soviet economic development has been relatively smooth and continuous since 1950. The basic strategy of growth has been the rapid increase of capital stock (plant and equipment) at a rate substantially greater than the growth in output and much greater than the growth in the labor force. Annual investments have continued to rise as a share of GNP; as a consequence, the share devoted to consumption has tended downward. The massive investment input has brought a continuing and substantial growth but one which has been moderately slower

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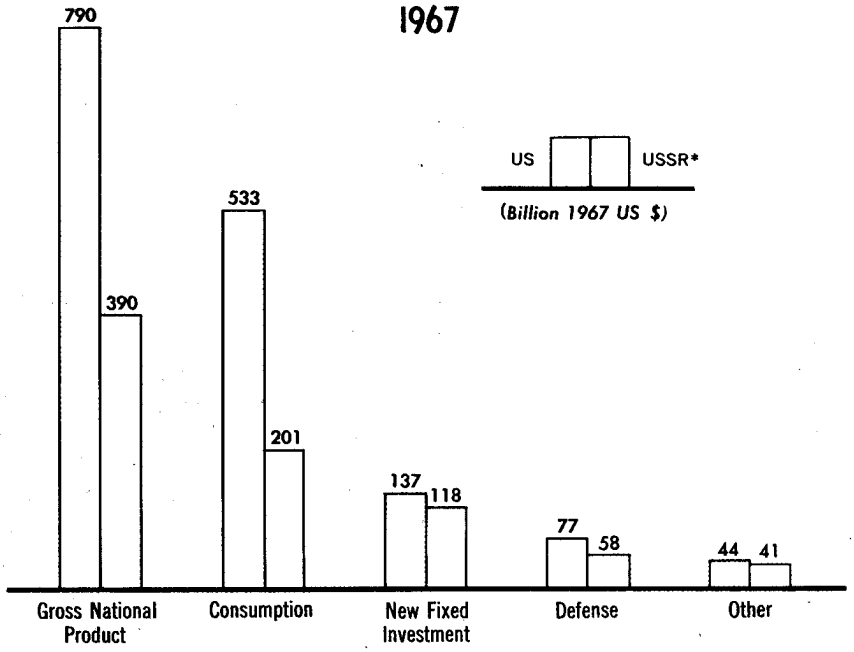
Figure 1

**US and USSR: Gross National Product by End Use**
**1967**




*Geometric average comparison

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in recent years than it was in the 1950's. The slowdown in growth was general throughout the economy, even in the long-favored sectors of industry and construction. The principal factors that seem to account for the slowdown include: (a) several poor crop years; (b) smaller increases in labor inputs as a result of a reduction in the workweek; (c) the failure to maintain previous rates of growth of new fixed investment; (d) problems in administering an increasingly sophisticated economy, particularly in the assimilation of new technology; and (e) growing demands from the military-space sector for advanced equipment and scientific-engineering manpower.

Over the next few years (1969-75) the Soviet economy is likely to grow at about the same rate achieved in the past decade. Inputs of labor and capital taken together are likely to increase at about 3.4 percent per year. The prospects for a significant upsurge in productivity are not promising. However, if

the USSR can maintain at least the average annual productivity gain achieved during the 1960's (1.6 percent), GNP will increase at about 5 percent annually. Although rates of growth may vary widely from year to year on account of agricultural fluctuations, the average is very unlikely to be below 4 percent or above 6 percent during 1969-75, barring some development without precedent or foreshadowing in the postwar years.

The size of the Soviet economy relative to the US changed markedly in the earlier postwar period. Soviet GNP rose from 34 percent of that of the US in 1950 to 46 percent in 1958. In that year the ebullient Nikita Khrushchev challenged the United States to a growth race, and "growthmanship" -- calculating when the Soviet Union would catch up with the United States -- came into vogue in both East and West. In the following decade, however, economic growth speeded up in the US and slowed in the USSR, and Soviet GNP has crept up only slowly to about 50 percent of the US level. If current forecasts of future growth in the two countries prove to be accurate, their relative positions will be essentially the same in 1975 as in 1968.

The USSR is unique among Western industrialized countries in having a highly developed industrial sector side by side with a backward agriculture and a fairly primitive trade and service network. Soviet industrial output is about half that of the US. Measured in physical units, Soviet production of some producers goods, such as crude steel, coal, machine tools, and cement, is close to or even exceeds US production, but Soviet output of consumer goods and modern materials such as plastics and synthetic fibers lags far behind that of the United States. Such numerical comparisons overstate the relative position of the USSR, however, because they do not allow adequately for the superior quality and much greater variety and assortment of products in the US. Total agricultural production in the USSR is about three-fourths that of the US, but productivity in agriculture is only about one-eighth the US level. More than 30 percent of the Soviet labor force still works in agriculture, compared with a mere 5 percent in the United States.

The US devotes a little more than two-thirds of its total output to consumption, compared with 56 percent in the USSR. The pattern of consumption of

the US and the USSR also differs significantly; the Soviet pattern resembles that of a relatively low-income country such as Italy. It is characterized by a much greater emphasis on food, which accounts for almost half of total consumption, compared with one-fifth in the US. The Soviet consumer's diet is heavily loaded with potatoes and bread, rather than meat and other proteins that are typical in the US. Per capita housing space in the USSR (75 square feet) is less than one-third of that in the US and is still below the minimum considered necessary for health and decency by the Soviet government itself. Stocks of consumer durables available to the Soviet population are very low by Western standards and their quality is poor. The USSR, with one automobile per each 200 people, has scarcely acquired a toehold in the automobile age.

The Soviet population is 18 percent larger than that of the United States, but its labor force is 50 percent larger and includes a much greater proportion of women. More than two-thirds of all adult women are in the labor force in the USSR, compared with about two-fifths in the US. In both countries, birth rates have been declining sharply in recent years, so that by 1968 both had a rate of population increase of about 1 percent. The downward trend in the birth rate will probably continue in the USSR for the next few years but may be reversed in the US.

Counting investment outlays, the USSR now spends almost three-fourths as much as the US on education. The average Soviet worker, however, has had only 7.5 years of schooling, whereas his US counterpart has had 12 years. Eight years of schooling are now compulsory in the USSR. Access to a university education, although increasing, is still restricted to a small proportion of eligible students. In sharp contrast to US practice, the Soviet curriculum is heavily oriented toward narrowly defined technical and engineering fields, and is ill-designed to equip future industrial managers to deal effectively with complex, rapidly changing technology and a more sophisticated labor force.

## Soviet and US Gross National Product, 1950-68

### Comparisons of Relative Size of GNP*

1. In 1968 the total output of goods and services (gross national product or GNP) in the USSR was about $412 billion, equal to half the size of US GNP. The USSR ranks second among the world's economic powers; its GNP is more than 2½ times as large as that of Japan and West Germany, the third and fourth countries in size of GNP. In sharp contrast, however, Soviet GNP per capita was 42 percent of US GNP per capita in 1968, about two-thirds of that in major countries of northwestern Europe, and about the same as in Japan and Italy.

2. During the early and middle 1950's, economic growth was quite rapid in the USSR and rather sluggish in the US, and as a result Soviet GNP rose from 34 percent of the US level in 1950 to 46 percent in 1958 (see Table 1). Elated by this development, Soviet Premier Khrushchev challenged the United States to a "growth race" and boasted that the USSR would overtake the US in the economic sphere by 1970. After 1958, however, Soviet growth slowed significantly, and the level of GNP remained at 47 to 48 percent of the US level until 1966. Since 1966 the ratio has crept up to 50 percent. The absolute gap between the GNP's of the two economies, however, has increased by $132 billion since 1958 (see Figure 2).

3. The relative positions of the several end uses of GNP in the USSR and the US also have changed markedly since 1950 (see Table 2 and Figure 3). Whereas in 1950 both consumption and new fixed investment were about one-fourth the US level, by 1967 new fixed investment had risen to 86 percent of that of the US. But consumption was still less than two-fifths of the

* *The percentage comparisons shown throughout this report are geometric averages of two separate measures of relative sizes of the two economies, one calculated in dollar prices and the other calculated in ruble prices. The procedure and the meaning of the results are discussed briefly in the Appendix. Although an attempt was made to allow for differences in quality of products in constructing these comparisons, the allowance is believed still to be inadequate, and hence the results overstate the position of the USSR relative to the US.*

Table 1

US and USSR: Comparison of Total GNP
1950-68

| | Billion 1967 US $ | | USSR as a Percent of the US |
|---|---|---|---|
| Year | USSR | US | |
| 1950 | 141 | 417 | 34 |
| 1955 | 195 | 514 | 38 |
| 1958 | 240 | 525 | 46 |
| 1960 | 261 | 572 | 46 |
| 1962 | 294 | 621 | 47 |
| 1964 | 324 | 682 | 48 |
| 1965 | 345 | 724 | 48 |
| 1966 | 368 | 771 | 48 |
| 1967 | 390 | 790 | 49 |
| 1968 | 412 | 829 | 50 |

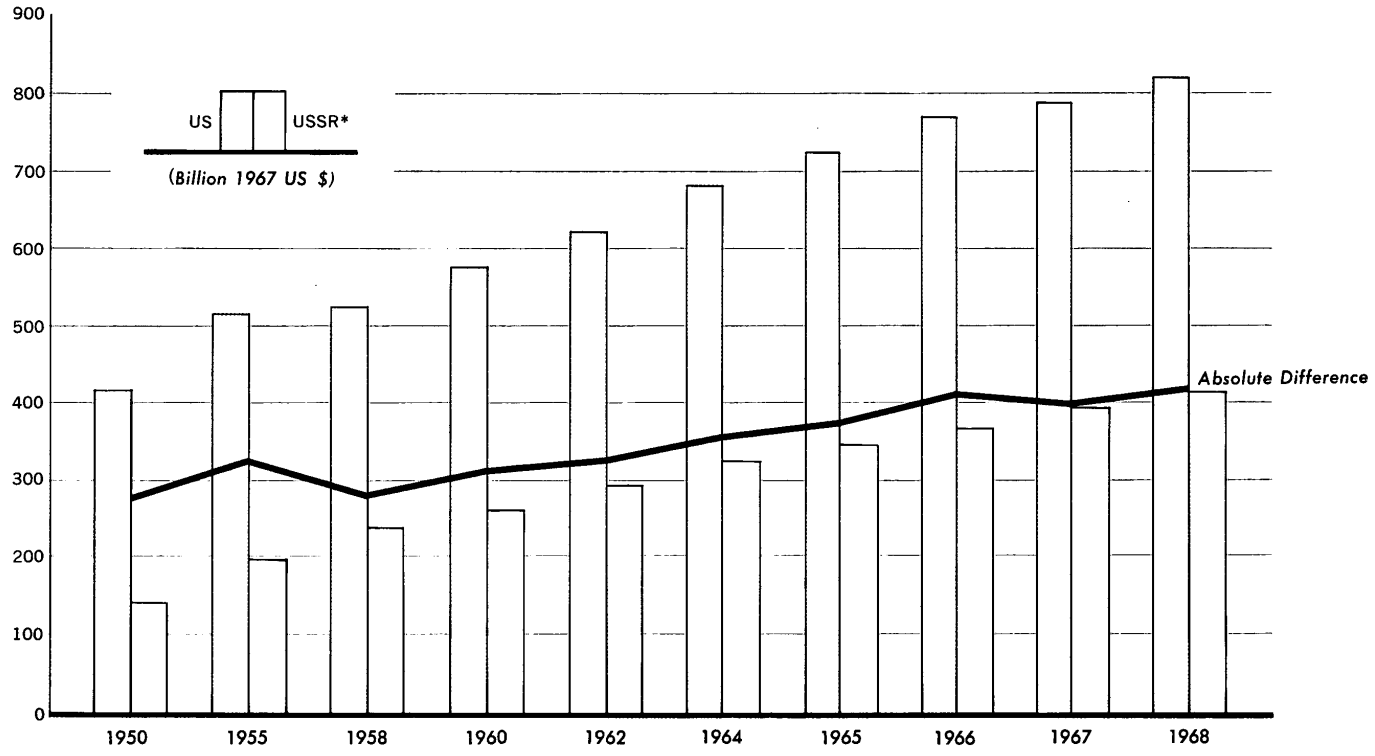
US level, and on a per capita basis it was only 32 percent. In contrast, Soviet defense expenditures were more than twice the size of US expenditures in 1950, about equal in 1955, and about three-fourths by 1967.

Comparison of Rates of Growth of GNP

4. From 1950 to 1958 the rate of growth of Soviet GNP far surpassed that of the US (see Table 3). Among the world's developed economies, only West Germany had a higher rate of economic growth during these years. Khrushchev's gamble with the new lands program had paid off with bigger and bigger harvests, culminating with the record harvest of 1958. Industrial production, driven upward by massive doses of investment and manpower, had more than doubled in eight years. And the USSR's success in its space and missile program was being advertised around the world. Since 1958, Soviet growth has tapered off significantly, while the growth of GNP has accelerated in the US. In the past ten years, the annual rate of growth of Soviet GNP has averaged 5.0 percent, only a little above the average of 4.7 percent in the US, but below the growth rates in Japan, France, Italy, and West Germany.

Figure 2

## US and USSR: Gross National Product, Selected Years, 1950-68

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*Geometric average comparison

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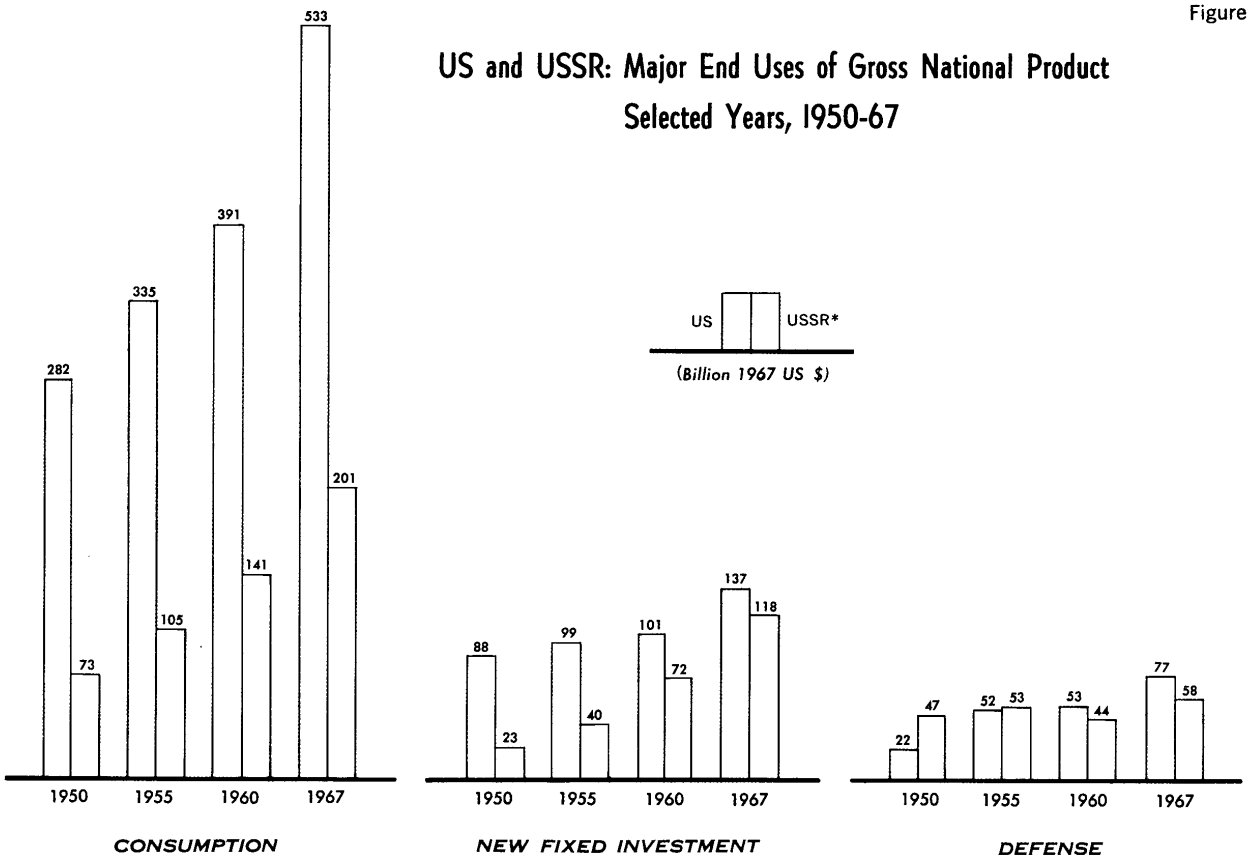
Figure 3

## US and USSR: Major End Uses of Gross National Product
## Selected Years, 1950-67

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*Geometric average comparison

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Table 2

US and USSR: Comparison of GNP, by Major End Use a/
Selected Years, 1950-67

| End Use Category | 1950 | | | 1955 | | | 1960 | | | 1967 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Billion 1967 US $ | | USSR as Percent of US | Billion 1967 US $ | | USSR as Percent of US | Billion 1967 US $ | | USSR as Percent of US | Billion 1967 US $ | | USSR as Percent of US |
| | USSR | US | | USSR | US | | USSR | US | | USSR | US | |
| Consumption b/ | 73 | 282 | 26 | 105 | 335 | 31 | 141 | 391 | 36 | 201 | 533 | 38 |
| New fixed investment | 23 | 88 | 26 | 40 | 99 | 41 | 72 | 101 | 72 | 118 | 137 | 86 |
| Defense | 47 | 22 | 211 | 53 | 52 | 101 | 44 | 53 | 84 | 58 | 77 | 75 |
| Other c/ | 17 | 24 | 72 | 13 | 28 | 45 | 22 | 28 | 81 | 41 | 44 | 93 |

*a. These comparisons for each end use and for total GNP are the averages of two percentage comparisons -- one calculated in dollar prices and one in ruble prices. Because averages are used, the sum of the dollar values of the end-use components of Soviet GNP exceeds the dollar value of Soviet GNP shown in Table 1 (see Table 9).*
*b. Including expenditures on education and health, as well as household outlays on goods and services.*
*c. Including expenditures on government administration, net foreign investment, and inventory change.*

Table 3

US and USSR: Annual Rates of Growth of GNP a/
1951-68

Percent

| Year | US | USSR | Year | US | USSR |
|---|---|---|---|---|---|
| 1951 | 7.9 | 2.8 | 1960 | 2.5 | 4.1 |
| 1952 | 3.1 | 8.6 | 1961 | 1.9 | 5.9 |
| 1953 | 4.5 | 3.8 | 1962 | 6.6 | 3.8 |
| 1954 | -1.4 | 5.5 | 1963 | 4.0 | 2.1 |
| 1955 | 7.6 | 10.0 | 1964 | 5.5 | 7.6 |
| 1956 | 1.8 | 9.3 | 1965 | 6.3 | 5.8 |
| 1957 | 1.4 | 1.9 | 1966 | 6.4 | 6.7 |
| 1958 | -1.1 | 10.7 | 1967 | 2.4 | 5.0 |
| 1959 | 6.4 | 4.2 | 1968 b/ | 5.0 | 5.5 |

| | Average Annual Rates of Growth | | | | |
|---|---|---|---|---|---|
| | 1951-68 | 1951-55 | 1956-58 | 1959-64 | 1965-68 |
| US | 3.9 | 4.3 | 0.7 | 4.5 | 5.0 |
| USSR | 5.7 | 6.1 | 7.2 | 4.6 | 5.7 |

*a. US growth rates are measured in 1958 dollars; Soviet growth rates are measured in 1960 rubles.*
*b. Preliminary.*

5. The slowdown in economic growth in the USSR was particularly sharp during 1959-64 and was general throughout the economy, with the agricultural sector showing the greatest drop. The sudden slowing seems to have resulted from a complex of factors; the principal ones are:

*Slowdown in agriculture* -- The semi-stagnation in agriculture as a result of a series of poor or mediocre crops contributed most to the slowdown in economic growth. Fueled by substantial doses of investment and the opening of new grain areas, agricultural output grew by 7 percent a year between 1953 and 1958, but in 1959-65, agricultural output increased at only 2 percent

a year. Although agricultural performance has improved in the last three years, a major contributing factor has been above-average weather.

*A drop in the growth of labor and capital inputs* -- In the late 1950's and early 1960's, additions to the population of working age in the USSR were reduced sharply by the low birth rates of World War II. Moreover, the Soviet leadership exacerbated the impact of this development by reducing the length of the workweek from 46 hours to 41 hours in 1956-60. Consequently, the number of manhours worked declined at an average annual rate of 0.7 percent during this period. The rate of growth of capital stock began to decline as a result of sharply reduced rates of growth of investment. From an average of 13 percent per year in 1951-58, the growth of new fixed investment declined to 8 percent per year in 1959-68. Although the leadership as usual chose to cut housing construction and investment in consumer industries -- where the effect on the growth of GNP or on strategic power is not so immediate -- nevertheless, the average annual growth of investment in heavy industry, construction, transportation, and communications dropped from 10½ percent in 1951-58 to 8 percent in 1959-68.

*Managerial problems* -- The highly centralized and bureaucratized system of economic management proved inflexible and inefficient in coping with the growing technological complexity of the Soviet economy and with changing priorities of the leadership. Khrushchev's sudden attempts to shift investment to new product areas, such as chemical fertilizers, synthetic fibers, and modern rolling mill equipment, resulted in disruptions in output and long delays in getting new plants, including imported ones, constructed and operating at capacity. The managerial problems were compounded by frequent reorganizations of the economic

bureaucracy, including a major reorganization of the educational system designed to provide vocational training in factories and on farms for all students.

*Changes in military spending* -- After the Korean War, total defense expenditures declined somewhat, thereby facilitating the investment boom of the 1950's. Expenditures jumped sharply in 1962 and then leveled off in 1963-65. After 1958, however, outlays for procurement of advanced military equipment and for research and development in the military-space sector rose far more rapidly than total defense expenditures. The work on the increasingly sophisticated aircraft, missile, and space equipment skimmed off the best of the available production facilities, designers, and scientists and almost certainly retarded investment programs and technological progress in the civilian sector.

Comparisons of Structure of Production

6. The USSR is unique among Western industrial countries in having a relatively highly developed industry side by side with a backward agriculture and an uneven but generally primitive trade and service network. This imbalance results from the overriding priority long given to the development of industry in the USSR, particularly to producers goods, at the expense of agriculture and services for the population.

7. Soviet industrial output as a whole is now about half that of the US, but the picture is a very mixed one. Soviet production of some producers goods in physical units, such as crude steel, coal, cement, and machine tools, is close to or even exceeds that in the US (see Table 4). In contrast, the USSR lags far behind the US in production of consumer goods and modern materials such as synthetic fibers and plastics. Soviet industry uses more labor and less capital than US industry, and its overall level of efficiency is perhaps about half that of the US.

8. Such overall numerical comparisons show the Soviet Union in a better light than it deserves, however. For one thing, the US produces a far greater

Table 4

US and USSR: Production of Selected Industrial Products
1967

| Product | Unit | US | USSR | USSR as a Percent of the US |
|---|---|---|---|---|
| Crude steel | Million metric tons | 115 | 102 | 89 |
| Rolled steel | Million metric tons | 84 | 71 | 84 |
| Coal | Million metric tons | 511 | 595 | 117 |
| Gas | Billion cubic meters | 515 | 157 | 31 |
| Crude oil | Million metric tons | 435 | 288 | 66 |
| Electric power | Billion kilowatt-hours | 1,314 | 546 | 42 |
| Metalcutting machine tools | Thousand units | 87 | 198 | 228 |
| Metal-forming machine tools | Thousand units | 52 | 41 | 79 |
| Motor vehicles | Thousand units | 8,976 | 729 | 8 |
| Passenger automobiles | Thousand units | 7,437 | 251 | 3 |
| Trucks and buses | Thousand units | 1,540 | 477 | 31 |
| Mineral fertilizers a/ | Thousand metric tons | 65,931 | 40,083 | 61 |
| Cement | Thousand metric tons | 65,321 | 84,809 | 130 |
| Synthetic rubber | Thousand metric tons | 1,943 | 690 | 36 |
| Plastics | Thousand metric tons | 6,563 | 1,114 | 17 |
| Footwear | Million pairs | 603 | 561 | 93 |
| Synthetic fibers | Thousand metric tons | 1,058 | 116 | 11 |
| Woven cotton fabrics | Million linear meters | 7,556 | 7,414 | 98 |

*a. In terms of Soviet statistical reporting units.*

variety and assortment of products than the USSR, and it produces many kinds of products that are not produced in the USSR at all. This abundance also means that both producers as well as consumers in the US enjoy a regularity and promptness of supply, the absence of which is one of the pervasive characteristics of Soviet society. Furthermore, Soviet-made products are generally inferior in quality, even in the favored producers goods sector. For example, relative to those in the US, Soviet tractors are underpowered and have a shorter service life. Soviet tires give from one-half to two-thirds as many miles of wear as US tires. US delegations that have visited the USSR all agree that Soviet machine tools are less durable, slower, less precise, and more prone to breakdown than US counterparts. There are even many examples of complaints from the less developed countries about the poor quality of Soviet equipment that they get under aid agreements.

9. As for consumer goods, the problem is even worse. Many Soviet durables such as washing machines and refrigerators resemble those produced in the US 20 years ago. And even these are of poor quality, judging from the constant complaints voiced in the Soviet press. Breakdowns are frequent, spare parts scarce, and repair services grossly inadequate. The fact that consumers rush to buy shoes imported from Eastern Europe testifies to the comparative inferiority of the Soviet shoe industry even within the Socialist camp.

10. Total agricultural production in the USSR is about three-fourths that of the US, but productivity is only about one-eighth of the US level. The USSR uses much more land and labor and much less capital, fertilizer, and machinery than does the US. More than one-third of the Soviet labor force still works in agriculture, compared with a mere 5 percent in the US. The inventory of tractors and trucks on farms as well as the application of mineral fertilizer per sown acre is about a third of the US level. Despite considerable improvement in the post-Stalin period, crop yields still average less than half those in the US and Western Europe and are even well below those in the Communist countries of Eastern Europe.

11. In assessing this comparative performance, it should be borne in mind that climatic conditions are

less favorable for agriculture in the USSR than in the US and Western Europe. Nevertheless, the relative neglect of agriculture over the years combined with the deleterious effects of the collective farm system of organization and rigid centralized administration has resulted in an agricultural sector that is backward and highly inefficient by almost any measure compared with other industrialized countries.

12. With respect to the service sectors, the trade and distribution network and personal service facilities of all kinds in the USSR are quite backward by Western standards. This situation is the result of the chronic neglect of this sector in the allocation of investment and workers. Although these sectors have had somewhat greater priority in the past few years, their still primitive state not only creates severe trials for the Soviet population, but also results in wastes of perishable products and other gross inefficiencies as a result of inadequate storage and distribution facilities.

Allocation of GNP in the US and the USSR*

13. The respective priorities in the Soviet and US economies since 1950 are clearly reflected in the shares of GNP devoted to consumption, new fixed investment, and military-space programs. Over the years the US has consistently allocated about two-thirds of its national product to personal consumption and health and education services. In contrast, the USSR, with a much smaller GNP and a larger population, has devoted a considerably smaller and gradually declining share of its resources to these purposes. Thus their share of total GNP fell from 60 percent in 1950 to 56 percent in 1967. In sharp contrast, the US devoted a generally smaller and decreasing share of total output to investment during 1950-67, whereas the share doubled in the USSR. In the US the share of investment dropped from 21 percent in 1950 to 17 percent in 1967; in the USSR it rose from 16 percent to 32 percent.

* *The percentage distributions of GNP by end use are calculated in the respective domestic prices of the two countries, as also are the allocation of consumption and new fixed investment, by categories.*

14. The share of GNP devoted to defense doubled in this period in the US (from 5 percent of the total to 10 percent) and was almost cut in half in the USSR (it fell from 14 to 8 percent). In the 1950's, the Soviet economy was orienting itself toward growth while the US economy, having passed through the post-war investment boom, was undertaking a large rearmament program. The shares of GNP allocated to defense changed little in either country in the 1960's.

Consumption Patterns

15. The patterns of consumption in the USSR and the US differ markedly (see Figure 4). Expenditures

Figure 4

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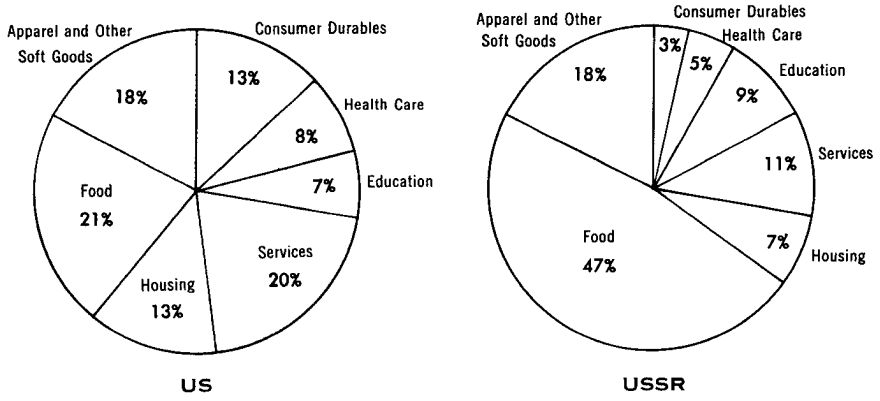
**US and USSR: Consumption Patterns in 1967**

*(Percent of Total Consumption Expenditures)*

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on food comprise nearly half of total expenditures on consumption in the USSR. The shares of consumption accounted for by housing and consumer services in the US are twice as large as in the USSR, and the consumer durables share is four times as large in the US as in the USSR. The shares devoted to apparel and other soft goods and to health and education are much the same in the two countries. Taken as a whole, the

pattern of US consumption expenditures is that of a high consumption economy, whereas the pattern in the USSR resembles that of a country such as Italy, which has a similar level of per capita income.

16. Despite marked improvement in the post-Stalin period, the Soviet diet is still heavily loaded with bread and potatoes, in contrast to the meat, dairy products, and vegetables that are characteristic in the US diet. Supplies of shoes, clothing, and other soft goods are also being made available in increasing amounts, including large imports, but their quality and variety in no way match those of the West. Although retail sales of consumer durables have also risen notably in the USSR since 1955, actual stocks of various durables and appliances still remain quite low by Western standards (see Figure 5), and their quality is poor. The sizable pent-up demand for many types of durables is reflected in the long waiting lists at retail outlets, particularly for automobiles.

Figure 5

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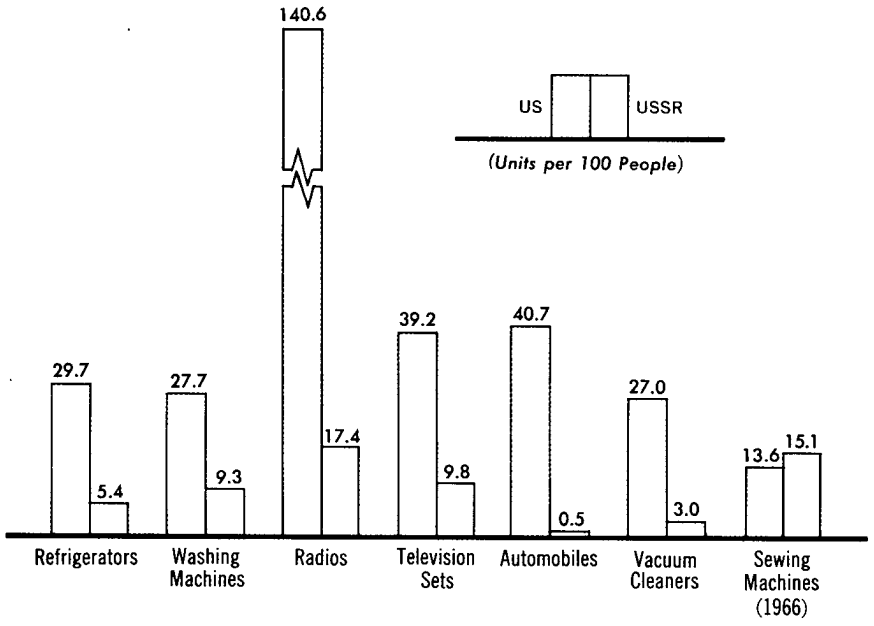
**US and USSR: Stocks of Consumer Durables, 1967**

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17. Housing in the USSR is extremely inferior by US standards. Rents, being subsidized by the government, are very low, but living quarters are crowded and not kept in repair. Although the government has made substantial investments in housing in the past decade, average per capita living space in 1967 was only 75 square feet, less than one-third of that in the US and well below the norm of 97 square feet set by the Soviet government itself as the "minimum standard for health and decency."

18. Over the years the USSR has devoted large resources to health and education. Measured in dollars, outlays, mainly by the government, were about three-fifths of US expenditures in 1967. With respect to education alone, total expenditures, including investment, are now almost three-fourths of the US level. With such a massive effort, the USSR raised the median number of years of schooling of its labor force from about 5.5 years in 1950 to about 7.5 years in 1968. The average in the US, however, is now a little more than 12 years. An eighth grade education is now compulsory and almost universal in the USSR, and a major effort is being made to implement a program of universal secondary education, defined to include either two years of additional schooling in the regular high schools or two to three years of semi-vocational training in the specialized secondary schools. Access to a university education, while growing, is still restricted to a relatively small fraction of the potential eligible students. University training continues to be overwhelmingly oriented toward narrowly defined engineering and technical fields. For example, engineers made up over two-fifths of the graduates from the universities in 1967. The Soviet system does not provide the broad-based training in business and management techniques that is typical in the US. Continued emphasis on narrowly specialized and technical training would not equip the future managers and elite in the economic bureaucracy to deal effectively with the problems of assimilating complex and rapidly changing technology and with managing a better trained and more sophisticated labor force.

Patterns of New Fixed Investment

19. The distribution of investment among sectors of the economy is quite different in the US and the

USSR, as shown in Table 5. Relative to the US, investment allocations in the USSR have favored the primary producing sectors over the service sectors. The changes in patterns of investment allocations that occurred during 1951-67 reflect both the relative priorities in the two countries and their relative stages of development. In particular, the USSR has had to allocate a substantial share of investment to agriculture in an attempt to raise its abysmal level of efficiency.

20. Measured in dollars, Soviet expenditures on industrial investment -- a critical factor in future economic growth -- have exceeded those in the US by about 10 percent over the past decade. On the other hand, the US spent two and one-half times as much as the USSR on civilian research and development during this period.

## Population and Labor Force in the US and the USSR

### Trends in Population Growth

21. In 1968 the population of the USSR was one-sixth larger than the population of the US, 238 million compared with 201 million (see Figure 6). Since 1950 the annual growth has averaged 1.6 percent in both countries. For the Soviet Union the decade of the 1950's was the longest period of sustained population growth in its 50-year history. During the 1960's, growth rates declined in both countries, and by 1968 the annual rate of population increase had dropped to less than 1 percent in the USSR and to 1.1 percent in the US.

22. In both countries the lower growth rates of population stem directly from declining birth rates, but the Soviet birth rate has fallen faster. In the 1950's, birth rates in the USSR exceeded US rates, but by the mid-1960's had fallen below the US rate (see Table 6).

23. The sharp drop in the Soviet birth rate since 1960 is due in part to decline in the number of women in the prime child-bearing ages (20 to 34 years) as a result of the low birth rates during World War II. The most important explanatory factor, however, is the

Table 5

US and USSR: Distribution of New Fixed Investment
Among Major Sectors of the Economy a/
1951-67

Percent of Total

| | Industry b/ | | Agriculture | | Transportation | | Housing | | Other c/ | |
|---|---|---|---|---|---|---|---|---|---|---|
| Period | US | USSR | US | USSR | US | USSR | US | USSR | US | USSR |
| 1951-55 | 31 | 40 | 6 | 15 | 10 | 9 | 30 | 20 | 24 | 16 |
| 1956-60 | 31 | 35 | 4 | 15 | 10 | 8 | 28 | 24 | 27 | 18 |
| 1961-67 | 32 | 36 | 4 | 15 | 11 | 9 | 23 | 18 | 30 | 21 |

*a. Measured in domestic prices of the respective country.*
*b. Including manufacturing, mining, and public utilities.*
*c. Including trade, services, communications, and public facilities not elsewhere classified.*

Figure 6

## US and USSR: Population, Selected Years, 1950-75

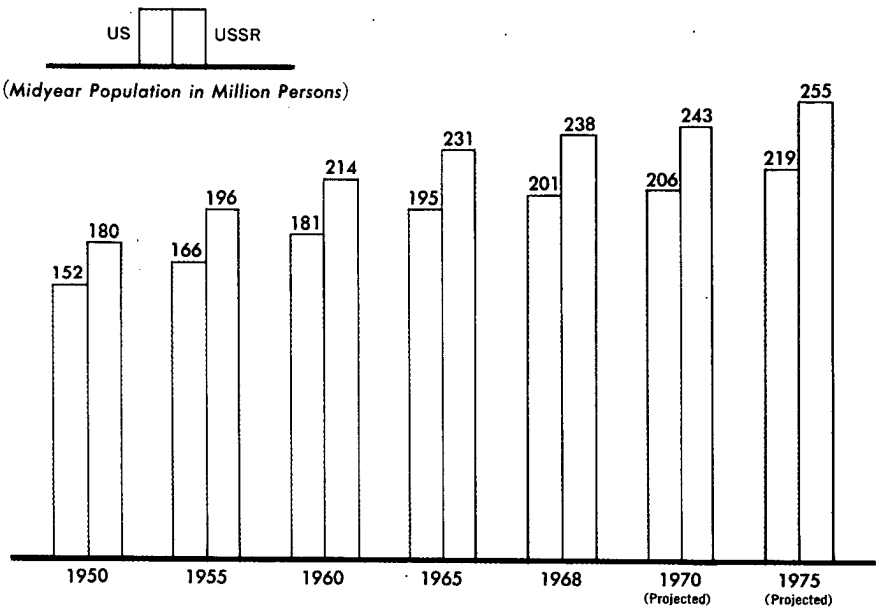


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Table 6

US and USSR: Indicators of Population Growth
Selected Years, 1950-67

| | Per Thousand Persons | | | |
|---|---|---|---|---|
| | 1950 | 1960 | 1964 | 1967 |
| USSR | | | | |
| Birth rate | 26.7 | 24.9 | 19.6 | 17.4 |
| Death rate | 9.7 | 7.1 | 6.9 | 7.6 |
| Rate of natural increase | 17.0 | 17.8 | 12.7 | 9.8 |
| US | | | | |
| Birth rate | 23.9 | 23.8 | 21.2 | 17.9 |
| Death rate | 9.6 | 9.5 | 9.4 | 9.3 |
| Rate of natural increase | 14.3 | 14.3 | 11.8 | 8.6 |

pronounced trend toward fewer children per family. This trend is attributable to several inter-related factors, including urbanization, greater employment among women, shortage of social amenities (particularly housing and child-care facilities), and a permissive attitude by society and government toward birth control.

24. In the US, the number of women in the prime child-bearing ages has increased since 1960, but at a slower rate than the total population. Thus women in the prime child-bearing ages have become a smaller share of the total population, explaining in part the decline in the birth rate. Moreover, in recent years US women have tended to postpone child-bearing until later in life, further depressing the birth rate.

25. The Soviet population is expected to grow at about 1 percent per year during the next decade,* with continuance of a downward trend in the birth rate. Because the number of women in the child-bearing ages will change little, a reversal of the trend in the birth rate would require an increase in fertility.** The influences that have caused fertility to decline -- urbanization, a desire for a higher standard of living, inadequate housing, and a high rate of employment among women -- are likely to continue. In contrast, the population of the US probably will grow somewhat more rapidly than in the past decade, and the downward trend in the US birth rate may be reversed because the number of women in the prime child-bearing ages will increase substantially and fertility rates probably will not drop significantly.

Size and Characteristics of the Labor Force

26. The Soviet labor force is more than 50 percent larger than the US labor force, although the adult

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* *Population projections are those of the US Bureau of the Census and are based on an assumption of constant fertility rates and slowly declining death rates in both countries.*

** *Fertility is defined as the ratio of total births to total female population of child-bearing age.*

population (16 and older) in the USSR is only one-fifth larger than that of the US. This difference is due to a much higher labor-force participation rate among women in the USSR. In both countries, approximately four-fifths of all men aged 16 and older are in the labor force, but in the USSR 68 percent of women in this age group work, compared with 41 percent in the US. The labor force participation rate of adult women has been rising in both countries over the past decade, but more rapidly in the US than in the USSR.

27. In 1966, women constituted more than one-half of the Soviet labor force but only about one-third of the US labor force. In both countries, women are employed more widely in such fields as health, education, communications, and trade than in other branches of the economy and least widely in construction and transportation. Women constitute more than three-fifths of the total number of persons employed in education in both countries. In contrast, however, the proportion of women employed in construction in the USSR is seven times that of the US (28 percent versus 4 percent); in transportation about three times (24 percent versus 9 percent); in agriculture, more than three times (60 percent versus 18 percent); and in industry (including manufacturing, mining, and electric power), almost two times (47 percent versus 25 percent).

28. Nearly 40 million people in the USSR -- one-third of the total labor force -- are currently employed in agriculture. In contrast, only about one-twentieth of the US labor force is employed in agriculture. No other industrialized country in the world devotes nearly so large a share of its labor force to agriculture as does the USSR. The US and USSR, however, employ about the same share of their labor forces in industry and construction, leaving the USSR with a much smaller percentage of its labor force in the trade and service sectors (see Figure 7). Both the US and the USSR currently employ between 14 million and 15 million people in education, health, and public administration. However, far more persons are employed in the US in trade; repair and other personal services; and financial, insurance, and real estate activities.

29. The share of employment accounted for by agriculture fell markedly in both the US and the USSR

between 1950 and 1967 -- from 11 percent to 5 percent in the US and from 54 percent to 36 percent in the USSR (see Table 7). As the Soviet Union proceeds with its agricultural investment program, it should be able to reduce still further the share of the labor force engaged in agriculture. In the redistribution of employment in the US during 1950-67, the service sector grew rapidly as the shares of agriculture and industry declined. Reflecting its less advanced stage of development, the USSR directed its surplus agricultural labor largely into industry.

Table 7

US and USSR: Distribution of Employment, by Major Sector
Selected Years, 1950-67

Percent

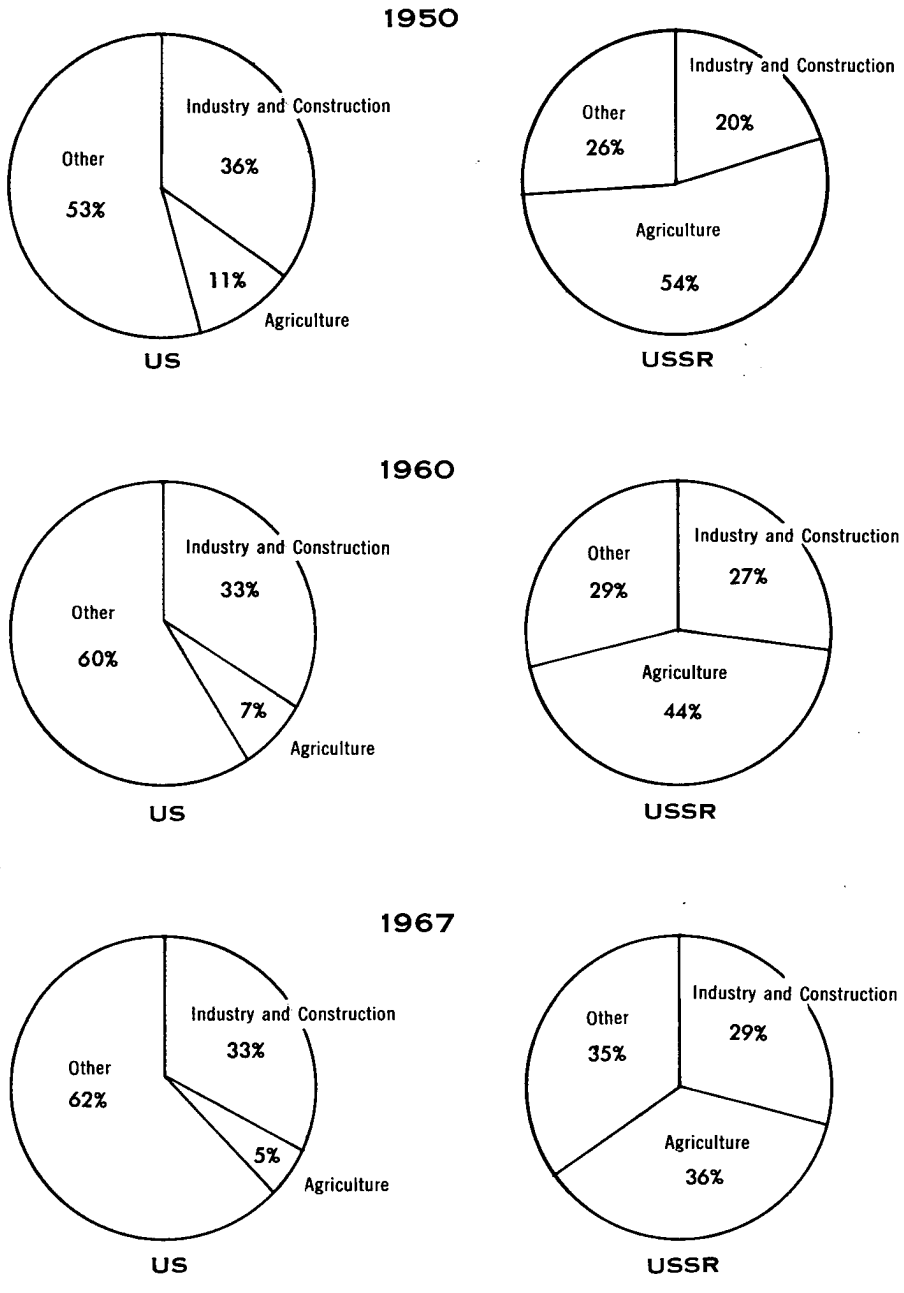
| Sector | 1950 | | 1955 | | 1960 | | 1967 | |
|---|---|---|---|---|---|---|---|---|
| | US | USSR | US | USSR | US | USSR | US | USSR |
| Industry | 30 | 17 | 30 | 19 | 28 | 22 | 28 | 24 |
| Construction | 6 | 3 | 6 | 3 | 5 | 5 | 5 | 5 |
| Agriculture | 11 | 54 | 8 | 50 | 7 | 44 | 5 | 36 |
| Transportation and communications | 6 | 5 | 6 | 6 | 5 | 7 | 5 | 7 |
| Trade and distribution | 18 | 4 | 18 | 4 | 19 | 5 | 18 | 6 |
| Services | 29 | 17 | 32 | 18 | 36 | 17 | 39 | 22 |

30. By 1975 the USSR and the US probably will increase their labor forces by some 17 million and 12 million, respectively. In both countries the trend toward a smaller proportion of the labor force in agriculture and a larger proportion in services is likely to continue, especially in the USSR if ambitious current plans to improve personal services, particularly in rural areas, are carried out.

Figure 7

# US and USSR: Employment By Major Economic Sector Selected Years, 1950-67

*(Percent of Total)*

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## Outlook

### Recent Economic Trends

31. The recent growth trends in the Soviet economy are summarized in Table 8.* For each period the average rate of growth of GNP is shown along with the growth of inputs -- the weighted average of labor, capital, agricultural land, and livestock -- and the growth of productivity, measured as the change in the ratios of GNP to inputs.

Table 8

USSR: Average Annual Rates of Growth in GNP, Productive Inputs, and Productivity a/
1951-68

Percent

| | 1951-55 | 1956-60 | 1961-64 | 1965-68 | 1961-68 |
|---|---|---|---|---|---|
| *GNP* | *6.1* | *6.0* | *4.8* | *5.7* | *5.3* |
| Inputs | 3.8 | 2.6 | 3.4 | 3.8 | 3.6 |
| Productivity | 2.2 | 3.3 | 1.4 | 1.8 | 1.6 |

*a. The estimates of productivity are based on a particular set of weights for the various inputs, combined geometrically. Calculations with plausible, alternative weights result in different levels of growth of productivity in each of the periods, but the general pattern over time remains the same.*

32. The fluctuations from period to period are surprisingly moderate and in part explainable by policy decisions. The surge in growth of productivity in 1956-60 stems from three significant actions that in effect produced substantial one-time gains: (a) the opening of the new lands gave a considerable lift to

** The time periods described in Table 8 were chosen to minimize the effect of fluctuations in agricultural weather conditions. The weather in the terminal years is roughly comparable in terms of its effect on agricultural production.*

agricultural output, one proportionately more than the increase in inputs; (b) the reduction of the armed forces from Korean War levels cut defense spending between 1955 and 1958; and (c) the shortening of the workweek carried out in 1956-60 was accompanied by severe pressure on enterprises to maintain output without increasing employment. The subsequent sharp fall of productivity growth in the 1960's seems to stem from a complex of factors (discussed above) related to management of technology, the impact of defense expenditures, and the effects of the weather on agriculture. The sharp fall in the rate of growth of inputs in 1956-60 resulted almost entirely from the reduction in the workweek; total manhours worked actually declined during 1956-60. Although the growth of manhours rose sharply after 1960, a moderate decline in the rate of growth of capital stock contributed to a lower rate of growth in total inputs relative to 1951-55.

33. All things considered, however, the major trends in the Soviet economy have proceeded smoothly. Many noisy debates about allocations have failed to produce noticeable quantitative changes. Khrushchev's removal, the denunciation of his economic policies, and the announcement of major new programs by Brezhnev appear to have been tempests over trend lines rather than decisions for substantial reallocations.

Prospects

34. The forecast below is guided mainly by the trends and relationships of 1960-68. The uncertainty in the forecast arises primarily from the difficulty in predicting trends in productivity. There is no way to tell whether growth of productivity will decline again or continue at current rates. Projections of inputs have a much more substantial basis; the principal one -- labor -- can be projected fairly reliably from demographic data, and rates of growth of capital stock have changed only very slowly in the past.

35. The annual increase in manhours worked is expected to average 2.0 percent in 1969-75, compared with 1.9 percent in 1961-68. This figure is based on the assumption of no further reduction in the workweek, because none has been announced by the Soviet leadership. The labor force will become

younger and better trained, but at about the same rate as in 1961-68. Capital stock probably will grow more slowly than during 1961-68 -- about 7.5 percent per year, compared with about 8.5 percent. The USSR is likely to continue to have difficulty in managing its investment programs effectively, and in addition, an increasing share of new fixed investment will be required simply to replace existing plant and equipment. Cultivated land, which increased by almost 5 percent a year in 1951-55 and somewhat more than 1 percent a year in 1956-64, actually decreased during 1965-68, and will rise only slightly during 1969-75. Livestock herds likely will grow at about the rate of the past four years. Considered in the aggregate, then, the inputs of productive factors available to the Soviet economy in 1969-75 are likely to increase at about 3.4 percent per year, about the same as in 1961-68.

36. If the USSR can maintain the rate of growth of productivity achieved during 1961-68, GNP will increase about 5 percent per year during 1969-75. Although annual rates may vary widely from this average as a result of agricultural fluctuations, the annual growth of GNP is unlikely to average less than 4 percent or more than 6 percent during this period, barring some development without precedent or foreshadowing in the postwar years.

37. One factor bearing both on the prospects for productivity and on the growth of capital stock is the future level of military expenditures. The projected growth of labor and capital inputs is based on the assumption that military expenditures will rise at about the rate of the past ten years (3 percent per year). During this decade, production of military equipment intended for deployment increased at only 2.5 percent a year, but outlays for space programs and military research and development climbed by 14 percent a year. If defense and space expenditures, especially on series production of military equipment, were to rise substantially more rapidly than in the recent past, the greater diversion of the economy's best resources could retard the growth of productivity and investment in the civilian economy. Conversely, slower growth in defense and space outlays would permit a somewhat faster growth of productivity and investment.

38. Gains from military savings, however, are likely to be slow in coming. Past experience indicates that resources are transferred slowly and inefficiently in the bureaucratized Soviet economy. Furthermore, even if military outlays were reduced as a result of an arms control agreement, the USSR probably would continue a vigorous military research and development program, and the military establishment surely would try to keep the best of its resources and release the ones of lesser quality.

39. On balance, the prospects for any significant upsurge in economic growth are not good. The principal requisite lies in better management of the economy, especially in the critical area of applying new technology. Although the Brezhnev-Kosygin leadership has launched major reforms intended to improve administrative methods and to provide more effective incentives throughout the economy, these reforms do not go very far and do not change the nature of the command economy in any important respect. They are being implemented gradually, and the gains, if any, in terms of efficiency have been small thus far. In particular, the reforms give little promise of accelerating the mastery of new technology and speeding up the process of bringing new plans up to capacity output. Although the USSR can continue to borrow technology from the West, in recent years advanced foreign technologies and imported plants have proved little easier to digest than those developed domestically.

40. However, a radical curtailment of growth also is not likely. Severe economic vicissitudes, or possibly even a sharp acceleration of the arms race, could reduce productivity gains, and hence the growth of GNP, well below 5 percent a year. The weather is a critical factor in determining agricultural output. It should be remembered that all of the major times of trouble in the Soviet economy have come as surprises -- the scrapping of the sixth five-year plan in its infancy, Khrushchev's major shakeups of economic administration, and the crises in agriculture during 1963-65. These kinds of developments cannot be predicted in advance.

41. If Soviet GNP grows at about 5 percent per year in 1969-75, the relative position of the US and the USSR in 1975 will be much the same as it is

today. Since 1950 the average annual rate of growth of GNP in the US has been about 4 percent; in 1959-64 it was 4½ percent, and in 1965-68, 5 percent. Projections of US GNP for the period through the mid-1970's range from 4 to 5 percent a year.* These projections imply that Soviet GNP would rise from 50 percent of US GNP in 1968 to about 51 percent in 1975, but the absolute gap in favor of the US would grow by about $132 billion in 1967 prices -- from $417 billion in 1968 to $549 billion in 1975.

42. It must be kept in mind, however, that relative national power is not defined sharply by overall comparisons. The steady growth of the Soviet economy permits the USSR to support growing military programs and international aid ventures without undue strain. An annual increment in economic growth in the neighborhood of 5 percent would allow a substantial increase in per capita consumption, a slight rise in the share of investment in GNP, and, if the leadership so chose, an increase in military-space outlays significantly greater than currently forecast.

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APPENDIX

## The Meaning of Comparisons of US and Soviet GNP

This report presents a comparison of GNP and its major end uses in the United States and the Soviet Union for selected years from 1950 to 1968. Because the GNP of the USSR must be estimated independently from inadequate official statistics and from a variety of other bits and pieces of information, the comparison can be only approximate. Furthermore, a comparison of any two economies must come to grips with the problem of valuing two very different assortments of output in a common set of prices. The international currency exchange rate cannot be used for the US and USSR, because the exchange rate is set arbitrarily, foreign trade is a tightly controlled monopoly in the USSR, and the exchange rate reflects imperfectly only the prices of goods and services that are traded internationally and therefore is not representative of the full range of output included in GNP.

The comparisons of GNP and major end uses of GNP in this report rely on a quite different procedure. First, US GNP is converted to rubles by appropriate average ratios of US and Soviet prices for various end use components. This procedure yields a percentage comparison of US and Soviet GNP in ruble prices. Then, Soviet GNP is converted to dollars by similar average ratios of US and Soviet prices, and a comparison of the two GNP's in dollar prices is derived.

The comparisons of GNP and the comparisons of major end uses of GNP in the US and in the USSR differ greatly, depending on whether the comparisons are stated in terms of US prices or Soviet prices (see Table 9). The explanation lies in the substantial difference in the pattern of output and prices in the US and the USSR, which reflects differences in tastes, levels of income, natural resources, technology, and state of development. All international comparisons of GNP's, including those for the US and the USSR, have found that the ratio of prices of goods between two countries is inversely related to the ratio of quantities produced. In other words, goods that are produced in large quantities in

Table 9

US and USSR: Comparison of GNP, by Major End Use
1967

| | Ruble Comparison | | |
|---|---|---|---|
| | 1955 Soviet Prices (Billion Rubles) | | USSR as a Percent of the US |
| | US a/ | USSR | |
| Consumption | 542 | 160 | 29 |
| New fixed investment | 85 | 64 | 75 |
| Defense | 25 | 20 | 77 |
| Other | 25 | 20 | 79 |
| *Total GNP* | *677* | *263* | *39* |

| | Dollar Comparison | | |
|---|---|---|---|
| | 1967 US Prices (Billion Dollars) | | USSR as a Percent of the US |
| | US | USSR b/ | |
| Consumption | 533 | 257 | 48 |
| New fixed investment | 137 | 135 | 99 |
| Defense | 77 | 57 | 74 |
| Other | 44 | 48 | 109 |
| *Total GNP* | *790* | *496* | *63* |

| | Geometric Average Comparison c/ | | |
|---|---|---|---|
| | Billion 1967 Dollars | | USSR as a Percent of the US |
| | US | USSR | |
| Consumption | 533 | 201 | 38 |
| New fixed investment | 137 | 118 | 86 |
| Defense | 77 | 58 | 75 |
| Other | 44 | 41 | 93 |
| *Total GNP* | *790* | *390* | *49* |

Table 9

US and USSR: Comparison of GNP, by Major End Use
1967
(Continued)

*a. Ruble figures for the US were obtained by multiplying dollar values of various end use components in the US by US-weighted average 1955 ruble-1967 dollar ratios.*
*b. Dollar figures for the USSR were obtained by multiplying ruble values for various end use components in the USSR by Soviet-weighted average 1967 dollar-1955 ruble ratios.*
*c. The geometric average comparison represents the geometric average of the ratios of Soviet to US GNP measured, alternatively, in 1955 rubles and in 1967 dollars. These average ratios are then multiplied by the values of each component of US GNP and by the value of total US GNP to derive single-valued dollar estimates of Soviet GNP and Soviet end use components of GNP. Because average size comparisons are used, the sum of the dollar values of the various end use components of Soviet GNP in the geometric average comparison is greater than the dollar value of Soviet GNP. Nevertheless, each individual comparison is taken to be the "best" single estimate of the relative size of the given category of GNP in the USSR and in the US.*

either country tend to sell at low prices in that country, and vice versa. In the US, for example, consumption goods are relatively cheap in comparison with goods produced for investment and defense relative to the prices for these goods in the USSR.

As a result of the inverse relation between prices and output in the US and the USSR, the GNP of the USSR is much larger relative to that of the US when the comparison is made in dollar prices than when the comparison is made in ruble prices. Dollar prices place greater weight on output of investment and defense, in which the USSR specializes; ruble prices place greater weight on the output of consumption goods, in which the United States has both an absolute and relative advantage. Strictly speaking, neither comparison really measures the difference in total output of the two countries, because no unambiguous comparison of output is possible, except in the unlikely case that both countries are producing an exactly proportional mix of goods and services. Thus a comparison of US and Soviet GNP's measured in dollar prices implies that the US could shift to the Soviet pattern of production and still produce the same dollar value of output as before. On this assumption, the comparison in dollar prices is an approximate measure of the relative ability of the two countries to produce the Soviet mix of output. The comparison of GNP's in ruble prices is a measure of their relative ability to produce the US mix of output. The quantitative results -- that the comparison in dollars is more favorable to the USSR and the comparison in rubles is more favorable to the United States -- reflect the fact that each country is better equipped to produce its own pattern of output than that of the other country.

The geometric mean of the dollar and ruble comparisons provides a single measure of relative size and, arguably, a better measure than either the dollar or ruble comparison. The dollar comparison implies that relative costs of producing the various kinds of output would not change if the US tried to transfer resources so as to produce the Soviet mix. Similarly, the ruble comparison implicitly assumes that the USSR could shift to the production of the US output mix with no change in unit costs or prices. Neither outcome is likely; each country would have to give up increasingly large amounts of output in exchange for more output characteristics of the other country's production mix. As a result, the dollar comparison of the relative size

of Soviet and US GNP is biased in favor of the US and the ruble comparison is biased in favor of the USSR. On the other hand, the geometric mean of the dollar and ruble comparisons of the GNP's of the two countries is an approximate measure of their relative ability to produce a mix of output that lies between the actual mixes in the two countries. Looked at in this way, the geometric mean provides a measure of the production capabilities of the two countries that is less biased than either of the comparisons in national prices.

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